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(54) **CONFORMAL OLED LUMINAIRE WITH COLOR CONTROL**

WINKELTREUER OLED-LEUCHTKÖRPER MIT FARBSTEUERUNG

LUMINAIRE À DIODE ÉLECTROLUMINESCENTE ORGANIQUE CONFORME DOTÉ D'UNE
COMMANDE DES COULEURS

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Description

BACKGROUND OF THE DISCLOSURE

[0001] This disclosure is directed to a luminaire, and more particularly to a luminaire that uses a flexible surface light source such as solid state light source, particularly an organic light emitting device (OLED). Specifically, use of a solid state light source such as a light emitting device (LED) or an OLED offers a wide range of different applications.

[0002] Recent developments with both LED and OLED light sources have come to fruition. As the lumen output of these structures has improved, there is a continuing need to develop new products and markets. Control of the light output is an important consideration, as well as color uniformity and color control. Further, simplified structures and applications that can advantageously use selected aspects of a solid state light source present new challenges with regard to function and cost. Consequently, a need exists to incorporate these design considerations into different lamp assemblies.

[0003] US 6 270 230 B1 discloses an umbrella with alert device including a circular umbrella cover made of waterproof material, an umbrella frame for supporting the umbrella cover to form an umbrella body, and an alert device for providing visual warning signal to others.

[0004] WO 2010/004073 A1 discloses a tent with integrated lighting system, the tent comprising supporting elements for extending flexible lighting elements and a cover sheet to a concave formation.

[0005] WO 2007/094810 A2 relates to methods and apparatus for high power factor power transfer to a load using a single switching stage, for example, a single stage high power factor driver to control power delivery to LED-based loads as light source. Each of the LED-based loads may include one or more LEDs of a same color. Different loads may include different color LEDs. The LED-based loads may include one or more "warm" white LEDs and one or more "cool" white LEDs so that by mixing different proportions of the warm and cool spectrums, a wide variety of intermediate color temperatures of white light may be generated.

[0006] EP 1 783 532 A1 discloses an illumination unit, comprising a screw for extending a light bar to a convex formation.

[0007] DE 299 13 930 U1 discloses a mobile lamp, comprising a screw and a spring for curving a carrier plate.

SUMMARY OF THE DISCLOSURE

[0008] It is an object of the present invention to provide a novel LED and/or OLED based luminaire.

[0009] The object is achieved by the features of the independent claim. Further embodiments are defined in the dependent claims.

[0010] A primary benefit of this disclosure is the provi-

sion of a device with light directing capability.

[0011] Another feature of the present disclosure relates to the ability to mix colors emitted from a flexible surface.

[0012] Still another advantage resides in the ability to focus or diffuse the light emitted from the flexible surface.

[0013] Still other benefits and advantages of the present disclosure will become more apparent from reading and understanding the following detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014]

Figure 1 is a perspective view of a luminaire or lamp assembly incorporating at least one flexible light source.

Figure 2 is a top perspective view of the luminaire of Figure 1.

Figure 3 is a perspective view similar to Figure 2 illustrating a concave curvature of the conformal lamp.

Figure 4 is a perspective view of the lamp of Figure 3 generally illustrated from the underside.

Figure 5 is a view similar to Figure 4 and illustrating a convex curvature of the conformal lamp.

Figure 6 is an enlarged view of the conforming mechanism.

Figure 7 is a perspective view of a conformal lamp using LEDs.

Figure 8 is a view of a blue OLED.

Figure 9 is an enlarged view of the LED Portion of the lamp of Figure 7.

Figure 10 is a perspective view with first and second flexible lamp portions of the same color shown in a concave curvature.

Figure 11 is a perspective view of a large panel OLED suspended from a stationary structure such as a ceiling.

Figure 12 shows the large panel OLED of Figure 11 in a concave configuration.

Figure 13 shows the large panel OLED in a convex configuration.

Figure 14 is a front view of an umbrella incorporating flexible light emitting panels.

Figure 15 is a bottom view of the open umbrella of Figure 14 more particularly illustrating location of light emitting panels.

Figure 16 is a perspective view of an alternate free standing lamp assembly that has a predetermined curvature that may be selectively altered by the support legs.

Figure 17 is a perspective view of a floor lamp using the OLED large panel.

Figure 18 is a plan view of an OLED panel in another preferred embodiment.

Figure 19 is a plan view of the OLED panel of Figure 18 with a diffuser plate received over the OLED panel.

Figure 20 is a front view of the OLED panel and diffuser plate assembly of Figures 18 and 19.

Figure 21 illustrates light output from a desk lamp employing the OLED panel and diffuser plate assembly of Figures 18-20.

Figures 22-24 are plan views of various locations of the OLED panel.

Figures 25 and 26 are plan views of the OLED panel with light piped in to illuminate at least a portion of the panel.

Figure 27 shows a flexible OLED panel disposed on a spherical-shaped surface.

Figure 28 illustrates the luminaire of Figure 27 with an adjustable reflector.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0015] Figures 1-6 illustrate a first preferred embodiment of a luminaire or lamp assembly 100. In this exemplary embodiment, the lamp assembly 100 includes a rigid base 102 having an ON/OFF switch 104 or the ON/OFF switch could also be incorporated in to the power supply cord 106. Extending from the base is a support or neck 108 which in the preferred arrangement is a rigid structure that is generally elongated and extends vertically above the base and is turned at an upper end 110. The upper end supports an elongated panel 120 formed of a thin material that is rigid with regard to its own weight and its rated load, but which can be conformed with an external force applied thereto. The panel preferably carries a solid state light emitting device 122. In the illustrated embodiment of Figures 1-6, the light emitting device is intended for a small area of illumination, that is, on the

order of less than one hundred square feet (100 ft²) per four (4) watt device by using flexible solid state panels such as OLED panels with greater than five (5) lux illumination. Multiple, flexible OLED panel portions 124, 126, 128 are shown in this embodiment. Each of these panel portions comprises OLED devices where each panel includes a first electrode and a second electrode which can be connected and powered in series, for example where there are three or less panels, or can be connected and powered individually, or in series/parallel mode for panels comprised of four or greater OLED portions. In the illustrated embodiment, the first and third panel portions 124, 128 preferably emit light of a first color, for example yellow light, while the second or central panel portion 126 emits a different color light, such as blue light. In order to have a flexible operation and provide a radius of curvature on the order of about five inches (5 in), an aspect ratio is from 1.0 to 1.8 with a thickness of less than five hundred micrometers (500 μ m). The total illuminating panel comprised of the three OLED panel portions may be on the order of approximately eighteen inches (18") in length and approximately four inches (4") in width. Due to its flexible operation, the thickness must be less than one millimeter (1mm) per one square meter (1m²) in order to reduce the potential for cracking in the device. Further, to reduce visible differentiation, the device can be covered with a diffuser material such as a fifty percent (50%) alumina, twenty percent (20%) titanium dioxide (TiO₂) and thirty percent (30%) (LaMg)₃(PO₄)₂ material, or a more preferable mixture is a titanium dioxide/alumina particle.

[0016] The blue emitting panel portion 126 is preferably located in a central region to form a high color illumination area at the center. Further, the light level of the blue device allows for CCT control, i.e., color control from approximately 3,000K to 7,000K. On a surface of the panel 120 opposite that of the light emitting devices 122 is provided a conforming mechanism 140. By "conforming" is meant imparting a smoothly contoured, generally continuous shape, arc, or curvature to the panel portion. Conforming is contrasted with "bending", for example, which is deemed to be imparting a sharp crease, angle, or fold to the panel portion. The conforming mechanism imparts curving over the length of the panel, for example, first and second arms 142, 144 extend from a central actuator 146. The outer or distal ends of each arm 142, 144 are pivotally mounted to the panel via pins 148, while the proximal or inner ends of the arms include a spur gear 150 that engages with a worm gear 152. Selective rotation of the worm gear imparts rotary motion to the spur gears which are moved toward and away from the rotational axis of the central worm gear in response to the actuation or rotation. The direction of rotation of the worm gear 152 via actuating handle or key 154 extends or retracts the first and second arms to impart a curvature to the elongated panel. Alternatively, rather than a manual control of this rotation, a motor may be used to impart such actuation to the elongated flexible panel.

[0017] With continued reference to Figures 1-6, and additional reference to another preferred embodiment of Figures 7-9, many of the same components will be identified by the same reference numerals, and where differences occur, new reference numerals are used. For example, the first and third panel portions 124, 128 are still disposed outwardly from a central panel portion which is preferably a blue OLED. The first and third panel portions, however, may be formed from individual light emitting devices or LED disposed in spaced relation over the panel portions where the individual LEDs 160 emit light which is then diffused by a cover or dome 162. The dome or translucent/transparent cover has a coating such as a phosphor for diffusing and emitting light over the entire surface of the dome rather than as individual point sources. Again, the first and third panel portions 124, 128 may be same color, which in a preferred arrangement is different from the second or central panel portion 126. It will also be recognized that with the embodiments of either Figures 1-6 or Figures 7-9, the direction of rotation of the actuator will control whether the panel 120, and particularly outer wing portions thereof, undertake a planar, convex, or concave conformation. The concave profile shown in Figures 3 and 4 tends to concentrate light inward toward a remote location, while the convex profile of Figure 5 diffuses light outwardly. Preferably, the wings are conformable up to a five inch (5") radius of curvature in both directions.

[0018] Moreover, using different colored light sources on the elongated end panels that are different from the central panel can control color mixing. For instance, a blue light source in the central panel portion 126 and yellow light sources in the first and third light panel portions 124, 128 will mix differently based on the degree of curvature of the panel.

[0019] Figure 10 is still another embodiment of the flexible luminaire or lamp assembly. Again, like reference numerals will refer to like components. The primary distinction is the elimination of a second panel portion of a different color. Thus, in this particular arrangement first and second end panel portions 164, 166 are preferably the same color and separated by a perimeter frame 168 associated with the individual solid state light emitting devices. Nevertheless, the ability to impart a convex or concave conformation to the elongated panel 120 via the conforming mechanism 140 allows for the ability to concentrate light inwardly in the concave profile as shown in Figure 10, or to diffuse light outwards if a convex profile (similar to Figure 5) is adopted.

[0020] Figures 11-13 illustrate an OLED large panel 200, shown suspended from a fixed structure such as a ceiling 202. Again, the solid state light emitting device is a large panel and may be comprised of multiple OLED panels tiled or joined together in an array such as the rectangular configuration of the OLED panel 200. Here, different panel portions may be the same color or may be alternate colors. In this arrangement, one portion of the panel is rigidly secured, here, being suspended via

first supports or support members 204. These first support members 204 are preferably non-adjustable. The first support members may be rigid members, or flexible wires that are extended to their full length to carry the weight of the OLED suspended from the ceiling. In this particular arrangement, the first support members support a first portion of the flexible surface, namely, a perimeter portion of the OLED panel. A second or adjustable member(s) 206 supports a second portion of the flexible surface. Here, the second, adjustable member 206 extends between the ceiling 202 and the central portion of the flexible surface. In this manner, selected extension and retraction of the adjustable support(s) 206 conforms the OLED panel into a concave conformation (Figure 12) when the adjustable support is retracted or conforms to a convex shape as shown in Figure 13 when the adjustable support is extended. Thus, the embodiment of Figures 11-13 illustrates a relatively simple configuration of a single convex or concave shape, although one skilled in the art will appreciate that different arrangements of non-adjustable support members and/or adjustable support members would allow alternative or more complex geometries to be achieved.

[0021] The embodiment of Figures 14 and 15 shows an umbrella 210. The handle 212 may include a battery or similar portable power device that is used to power individual flexible light panel portions or light surfaces 214 disposed in segments 216 on the umbrella surface. Particularly, the flexible light panel portions are located on the interior portions of the umbrella and are shown here as being located in every other flexible segment of the interior of the umbrella. Of course, this need not be the case, and a greater or lesser number of segments or portions of the umbrella segments may be used without departing from the scope and intent of the present disclosure.

[0022] In Figure 16, a panel 230 includes solid state light emitting devices 232 such as OLEDs to emit light from at least one surface of the panel. In this arrangement, the panel has a predetermined curvature, i.e., when viewed from the floor as illustrated in Figure 16, the panel has a generally convex contour. An adjustable support 234 is provided to alter the curvature of the panel. For example, first and second adjustable support members 236, 238 are pivotally joined together in central region 240 to form an adjustable generally "x-shape" support. First or lower ends 242 of each of the support members 236, 238 are received in a base 244 that includes slots 246, one slot preferably for each of the lower ends 242, and in which each slot has segmented, spaced stops 248 that allow each leg to be individually moved relative to the base, and engage against a new or different stop. This allows the light emitting surface 232 to be tilted, and also allows the curvature of the panel to be altered. For example, if the dimension between the lower ends 242 is increased, then the curvature at the second or upper ends 250 will likewise be increased and spanning members 252 will likewise be spread apart. This reduces the

curvature of the panel. In similar fashion, when the first ends 242 are brought closer to one another, then the second ends 252 likewise are brought closer together and the predetermined conformation of the panel allows the curvature to increase, i.e., become more convex. If one of the legs on each side is maintained against the same stop in the base while the position of the lower end of the other leg is altered, the curvature not only changes, but the tilt or angle of the panel. Consequently, the contour and angle of the light emitting surface will also be altered.

[0023] Figure 17 demonstrates a floor lamp 260 that includes a base 262, ON/OFF switch 264, power supply cord 266, and an elongated support 268 that includes a bent over upper end 270. A larger panel 280 would likely use a larger matrix of individual light sources or OLED devices. Additionally, if a motor were implemented to control formability of the panel and light emitting surface thereof, a remote control 284 could be used to control the motor and likewise turn the lamp on and off. Further, the remote control could be used for dimming of the lamp.

[0024] An exemplary desk or portable lamp includes a blue OLED having a light emitting surface area of approximately three square inches and two rectangular yellow OLEDs disposed on opposite sides of the blue OLED, where each yellow OLED has three light emitting surface areas that are approximately three -six square inches in surface area and each totaling approximately eighteen square inches as shown in Figures 1-6. The total power for this lamp was less than 2.5 W. The color tuning was achieved from 3500K to 5600K by tuning or adjusting the power level of the blue OLED from about twenty percent (20%) of the power to one hundred percent (100%) of the power to a spot at a distance less than about three feet. The luminaire emits about fifty to one hundred fifty lumens at its maximum efficiency. Optionally, an outcoupling film could be used to focus light in a forward direction where one preferred type of outcoupling film is sold by 3M under the tradename BEF2 or BEF3. Although in the exemplary embodiment the OLED devices were driven with a DC power supply in series, it will be understood that the devices could also be driven individually. Parallel driving of the OLED devices is typically not preferred.

[0025] Shown in Figures 18-21 is another preferred embodiment of a flexible luminaire that has many of the characteristics of previous embodiments. In this arrangement, luminaire 300 includes an elongated, thin, generally rectangular large area panel 302 (for example, on the order of 10 cm x 100 cm, or 20 cm x 100 cm). In the same manner as described in the prior embodiments, OLEDs 304, 306, 308 may be a single color or different colors, and by forming the OLED panel 302 and accompanying support structure 310 as thin layers, flexibility of the entire assembly may be achieved. Here, a diffuser plate 312 preferably extends in closely spaced relation over the OLEDs and is supported along a perimeter edge 314 from the OLEDs. By way of example only, the diffuser plate 312 has a thickness less than 2 mm and is spaced

from the OLEDs by a dimension that ranges from approximately 4 mm to 10 mm. On the other hand, in other embodiments the diffuser plate has a thickness greater than 2 mm and may be in direct contact with the OLED panel, however, this arrangement is slightly less efficient. In either case, the diffuser plate provides edge lighting as represented by the light ray traces 316 in Figures 20 and 21.

[0026] Figures 22-26 disclose variations of above-described concepts such as alternative locations of the OLEDs in the light emitting surface of the panel. In Figure 22, end portions 330, 332 of the generally rectangular panel do not include any OLEDs, and instead the multiple OLEDs 334 are disposed along a central portion of the geometric shape of the panel. Similarly, the embodiment of Figure 23 also locates a single large OLED or light emitting portion 336 of the panel in a central region and the end portions 340, 342 are devoid of any light emitting surface. In the exemplary embodiment of Figure 24, though, central portion 350 does not include a light emitting member and instead the perimeter portions include elongated light emitting regions 352, 354 adjacent two edges and light emitting end regions 356, 358. Figure 25 adds to the arrangement of Figure 24 by including additional light from associated fiber optics (not shown) that illuminate all or some of an area of the flexible panel that includes a diffuser 360. Similarly, the exemplary embodiment of Figure 26 uses a lens 370 or high index of refraction material such as glass to aid in directing light to a preferred location or to create a more uniform light throughout the flexible panel.

[0027] In Figure 27, a generally spherical-shaped surface 400 receives a flexible OLED panel 402 on a portion thereof. This illustrates that the OLED panel is generally flexible in more than one direction. Further, the spherical-shaped surface 400 may be selectively altered (Figure 28) to change the light output from the panel. In addition, a selectively variable reflector surface(s) 404 may likewise be altered by changing the spherical-shaped surface 400 or by using an alternative mechanism to vary the shape of the surface. It is also contemplated that the spherical-shaped support surface 400 could be actively varied via a remote control.

[0028] The disclosure has been described with respect to preferred embodiments. Obviously, modifications, alterations, and associated benefits may be contemplated by one skilled in the art. For example, although the proposed solutions find particular use in large area OLED devices that use electrical feed-through openings, selected aspects may also find application in OLED devices in general. Structural material for the flexible luminaire can be a thin ductile metal, polymeric or elastomeric material. Alternatively, the structural material may be a plastic composite, i.e. a metal/carbon reinforced polymer composite having sufficient thermal conductivity (>1W/mk) to ensure heat dissipation of large panel luminaires. Preferred carbon can be carbon nanotube, graphene, graphene oxide or graphite with up to 50% filling.

Typical metal can be Al, Sn, and Ni, etc. The subject disclosure should not be limited to the particular examples described above but instead through the following claims.

Claims

1. A luminaire (100) comprising:

a flexible surface (120);
a solid state light emitting device (122) mounted to the surface, the light emitting device (122) including at least first and second panel portions (124, 128), the first and second panel portions (124, 128) being conformable; and
a conforming mechanism (140) for curving the first and second panel portions (124, 128), **characterized in that**
the conforming mechanism (140) includes first and second arms (142, 144) extending from a central actuator (146), the first and second arms (142, 144) secured at distal ends to the flexible surface (120),
inner ends of the first and second arms (142, 144) each include a spur gear (150) that engages with a worm gear (152), and
rotation of the worm gear (152) imparts rotary motion to the spur gears (150) which extends or refracts the first and second arms (142, 144) to impart a concave curvature or a convex curvature to the first and second panel portions (124, 128).

2. The luminaire (100) of claim 1 wherein the conforming mechanism (140) selectively curves the first and second panel portions (124, 128) into one of a planar conformation or an arcuate conformation.

3. The luminaire (100) of claim 1 or claim 2, wherein the conforming mechanism (140) selectively curves the first and second panel portions (124, 128), from a first arcuate conformation to a second arcuate conformation having a greater degree of curvature than the first arcuate conformation.

4. The luminaire (100) of claim 1, 2 or 3, wherein one of the first and second panel portions (124, 128) includes a light emitting diode, LED.

5. The luminaire (100) of claim 4, wherein the LED includes multiple LEDs (160) in the first panel portion (124) enclosed by a translucent housing (162).

6. The luminaire (100) of any preceding claim, wherein the first panel portion (124) is conformed relative to the second panel portion (128).

7. The luminaire (100) of any preceding claim, further comprising a thin diffuser overlying at least a portion of the first panel portion (124) for directing light from an edge thereof.

8. The luminaire (100) of any preceding claim, wherein the first and second panel portions (124, 128) are organic light emitting devices, OLED.

9. The luminaire (100) of any preceding claim, wherein the conforming mechanism (140) includes a threaded member for selectively altering a curvature of the first and second panel portions (124, 128).

10. The luminaire (100) of claim 9, wherein the flexible surface (120) is elongated.

11. The luminaire (100) of any preceding claim, further comprising a central panel portion (126).

12. The luminaire (100) of claim 11, wherein the central panel portion (126) is centrally positioned between the first and second panel portions (124, 128) disposed on either side thereof, and/or the central panel portion (126) emits blue light, and the first and second panel portions (124, 128) emit yellow light.

Patentansprüche

1. Leuchte (100) mit:

einer flexiblen Oberfläche (120);
einer an der Oberfläche befestigten Festkörperlichtaussendevorrichtung (122), wobei die Lichtaussendevorrichtung (122) wenigstens einen ersten und einen zweiten Paneelabschnitt (124, 128) aufweist, wobei der erste und der zweite Paneelabschnitt (124, 128) anpassbar ist; und
einen Anpassmechanismus (140) zum Krümmen des ersten und des zweiten Paneelabschnitts (124, 128),

dadurch gekennzeichnet, dass

der Anpassmechanismus (140) aufweist einen ersten und einen zweiten Arm (142, 144), die sich von einem Zentralaktuator (146) erstrecken, wobei der erste und der zweite Arm (142, 144) an distalen Enden an der flexiblen Oberfläche (120) befestigt sind,

innere Enden des ersten und des zweiten Arms (142, 144) jeweils ein Stirnrad (150) aufweisen, das an einem Schneckenrad (152) angreift, und eine Rotation des Schneckenrads (152) eine Drehbewegung auf das Stirnrad (150) ausübt, welche den ersten und den zweiten Arm (142, 144) ausfährt oder einfährt, um dem ersten und dem zweiten Paneelabschnitt (124, 128) eine

konkave Krümmung oder eine konvexe Krümmung zu verleihen.

2. Leuchte (100) gemäß Anspruch 1, wobei der Anpassmechanismus (140) wahlweise den ersten und den zweiten Paneelabschnitt (124, 128) in eines von einer ebenen Gestalt oder einer gebogenen Gestalt krümmt. 5
3. Leuchte (100) gemäß Anspruch 1 oder Anspruch 2, wobei der Anpassmechanismus (140) wahlweise den ersten und den zweiten Paneelabschnitt (124, 128) aus einer ersten gebogene Gestalt in eine zweite gebogene Gestalt mit einem größeren Krümmungsgrad als der ersten gebogene Gestalt krümmt. 10
4. Leuchte (100) gemäß Anspruch 1, 2, oder 3, wobei eines von dem ersten und dem zweiten Paneelabschnitt (124, 128) eine Licht emittierende Diode, LED aufweist. 15
5. Leuchte (100) gemäß Anspruch 4, wobei die LED mehrere LEDs (160) in dem ersten Paneelabschnitt (124) aufweist, der durch ein transluzentes Gehäuse (126) eingeschlossen ist. 20
6. Leuchte (100) gemäß einem der vorhergehenden Ansprüche, wobei der erste Paneelabschnitt (124) relativ zu dem zweiten Paneelabschnitt (128) angepasst ist. 25
7. Leuchte (100) gemäß einem der vorhergehenden Ansprüche, weiter aufweisend einen dünnen Diffusor, der wenigstens einen Abschnitt des ersten Paneelabschnitts (124) zum Ausrichten von Licht von dessen Kante überlagert. 30
8. Leuchte (100) gemäß einem der vorhergehenden Ansprüche, wobei der erste und der zweite Paneelabschnitt (124, 128) organische Licht emittierende Dioden, OLED sind. 35
9. Leuchte (100) gemäß einem der vorhergehenden Ansprüche, wobei der Anpassmechanismus (140) ein mit einem Gewinde versehenes Teil zum wahlweisen Ändern einer Krümmung des ersten und des zweiten Paneelabschnitts (124, 128) aufweist. 40
10. Leuchte (100) gemäß einem der vorhergehenden Ansprüche, wobei die flexible Oberfläche (120) längsgestreckt ist. 45
11. Leuchte (100) gemäß einem der vorhergehenden Ansprüche, weiter aufweisend einen zentrale Paneelabschnitt (126). 50
12. Leuchte (100) gemäß Anspruch 11, wobei

der zentrale Paneelabschnitt (126) mittig zwischen dem ersten und dem zweiten Paneelabschnitt (124, 128) angeordnet ist, wobei er auf einer der Seiten davon angeordnet ist, und/oder der zentrale Paneelabschnitt (126) blaues Licht aussendet und der erste und der zweite Paneelabschnitt (124, 128) gelbes Licht aussenden.

Revendications

1. Luminaire (100), comprenant :

une surface flexible (120) ;
un dispositif électroluminescent à semi-conducteur (122) monté en surface, le dispositif électroluminescent (122) incluant au moins des première et seconde portions de panneau (124, 128), les première et seconde portions de panneau (124, 128) étant conformables, et un mécanisme de conformation (140) destiné à incurver les première et seconde portions de panneau (124, 128),

caractérisé en ce que

le mécanisme de conformation (140) inclut des premier et second bras (142, 144) s'étendant à partir d'un actionneur central (146), les premier et second bras (142, 144) étant fixés en des extrémités distales sur la surface flexible (120) ; des extrémités intérieures des premier et second bras (142, 144) incluent chacune un engrenage cylindrique (150) venant en prise avec un engrenage à vis sans fin (152), et la rotation de l'engrenage à vis sans fin (152) confère un mouvement rotatif à l'engrenage cylindrique (150), lequel étend ou escamote les premier et second bras (142, 144) pour conférer une courbure concave ou une courbure convexe aux première et seconde portions de panneau (124, 128).

2. Luminaire (100) selon la revendication 1, dans lequel le mécanisme de conformation (140) incurve de manière sélective les première et seconde portions de panneau (124, 128) en une forme parmi une conformation plane ou une conformation arquée.

3. Luminaire (100) selon la revendication 1 ou 2, dans lequel le mécanisme de conformation (140) incurve de manière sélective les première et seconde portions de panneau (124, 128), d'une première conformation arquée à une seconde conformation arquée présentant un degré de courbure plus élevé que la première conformation arquée.

4. Luminaire (100) selon la revendication 1, 2 ou 3, dans lequel les première et seconde portions de panneau (124, 128) incluent une diode électrolumines-

cente, DEL.

5. Luminaire (100) selon la revendication 4, dans lequel la DEL inclut des DEL multiples (160) dans la première portion de panneau (124) renfermée par un logement translucide (162). 5
6. Luminaire (100) selon l'une quelconque des revendications précédentes, dans lequel la première portion de panneau (124) est conformée par rapport à la seconde portion de panneau (128). 10
7. Luminaire (100) selon l'une quelconque des revendications précédentes, comprenant en outre un diffuseur mince recouvrant au moins une portion de la première portion de panneau (124), destiné à diriger la lumière à partir d'un bord de celui-ci. 15
8. Luminaire (100) selon l'une quelconque des revendications précédentes, dans lequel les première et seconde portions de panneau (124, 128) sont des dispositifs électroluminescents organiques, OLED. 20
9. Luminaire (100) selon l'une quelconque des revendications précédentes, dans lequel le mécanisme de conformation (140) inclut un élément fileté destiné à modifier de manière sélective une courbure des première et seconde portions de panneau (124, 128). 25
10. Luminaire (100) selon la revendication 9, dans lequel la surface flexible (120) est oblongue. 30
11. Luminaire (100) selon l'une quelconque des revendications précédentes, comprenant en outre une portion de panneau centrale (126). 35
12. Luminaire (100) selon la revendication 11, dans lequel la portion de panneau centrale (126) est positionnée de manière centrale entre les première et seconde portions de panneau (124, 128) disposées de chaque côté de celle-ci, et/ou la portion de panneau centrale (126) émet une lumière bleue, et les première et seconde portions de panneau (124, 128) émettent une lumière jaune. 45

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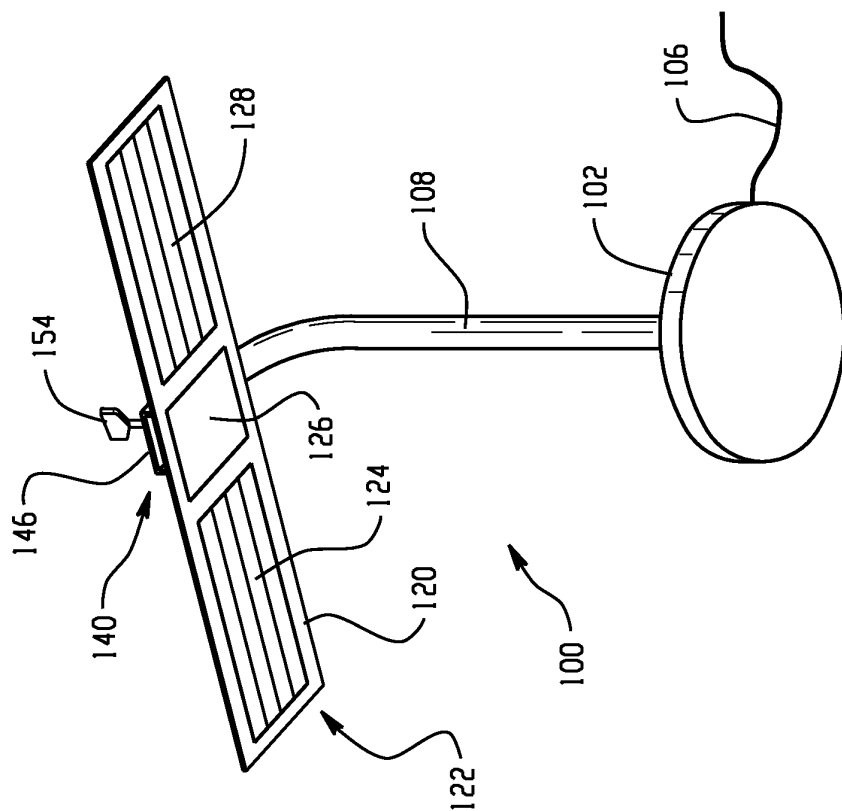


Fig. 1

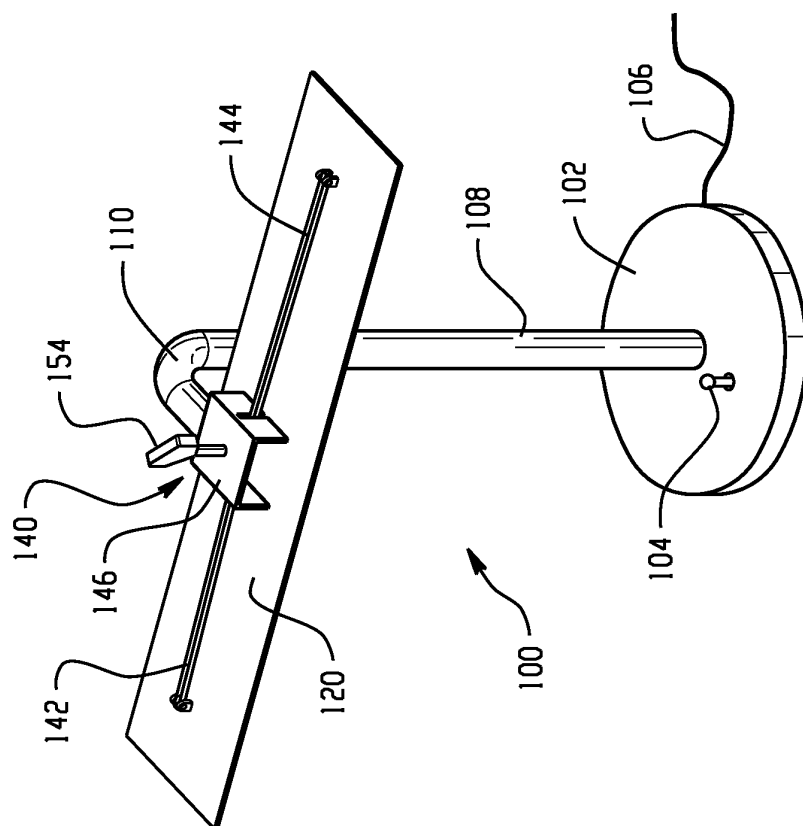


Fig. 2

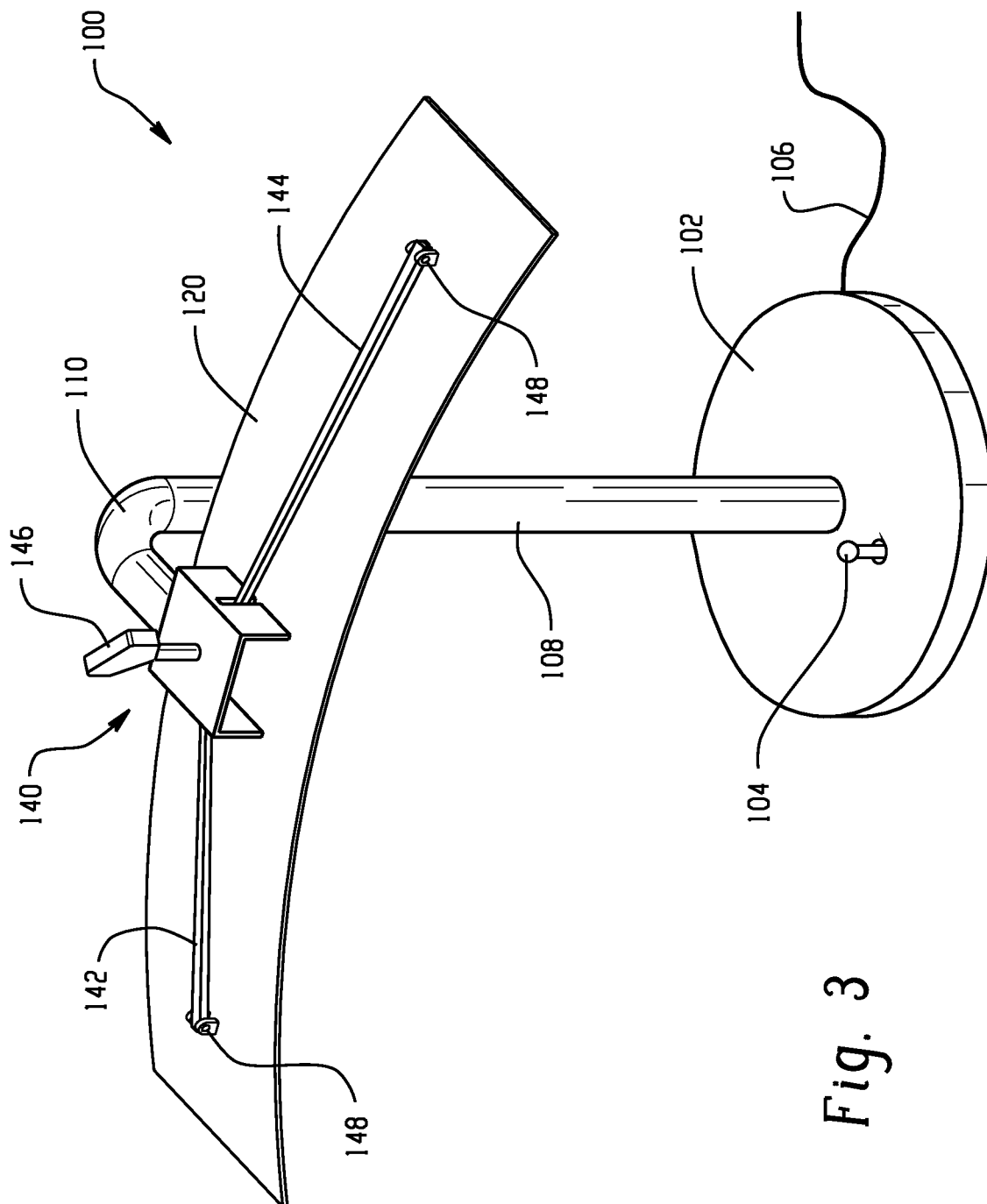


Fig. 3

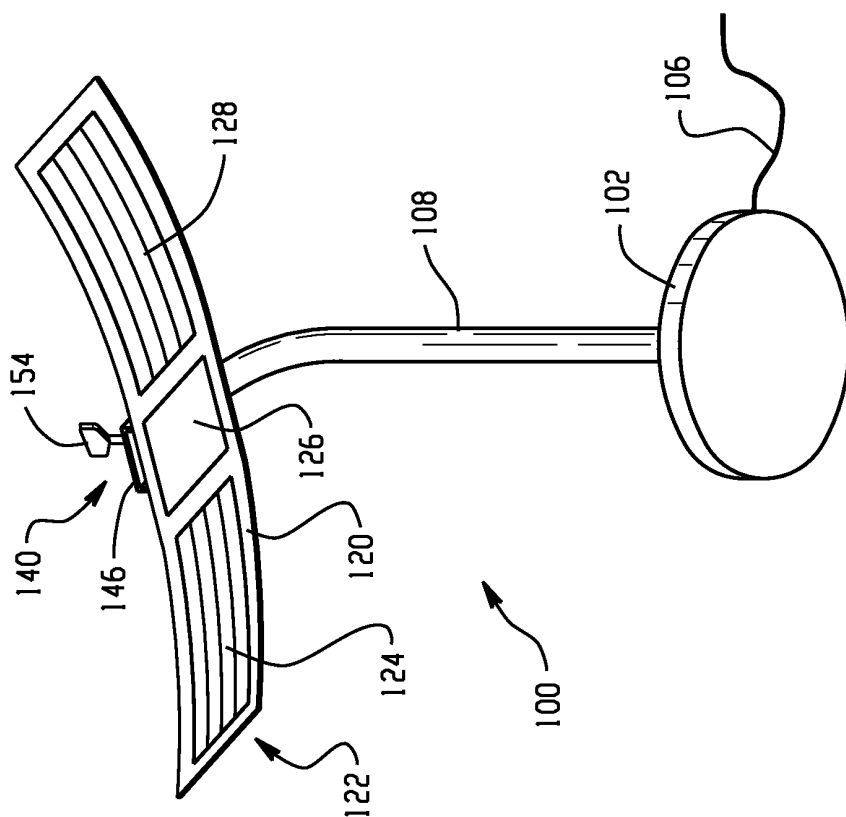


Fig. 5

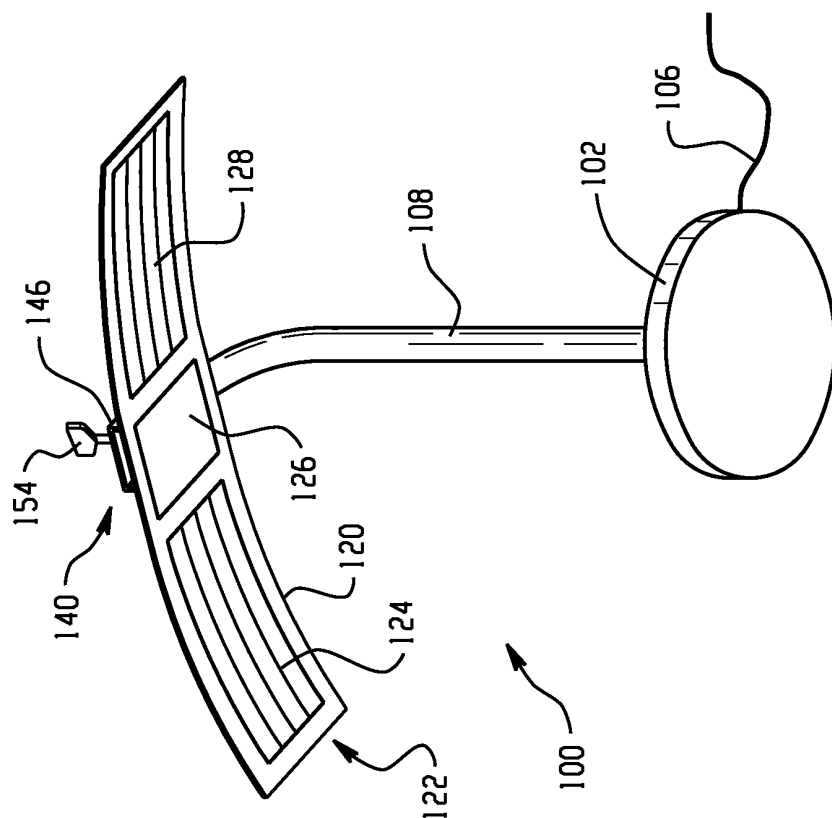


Fig. 4

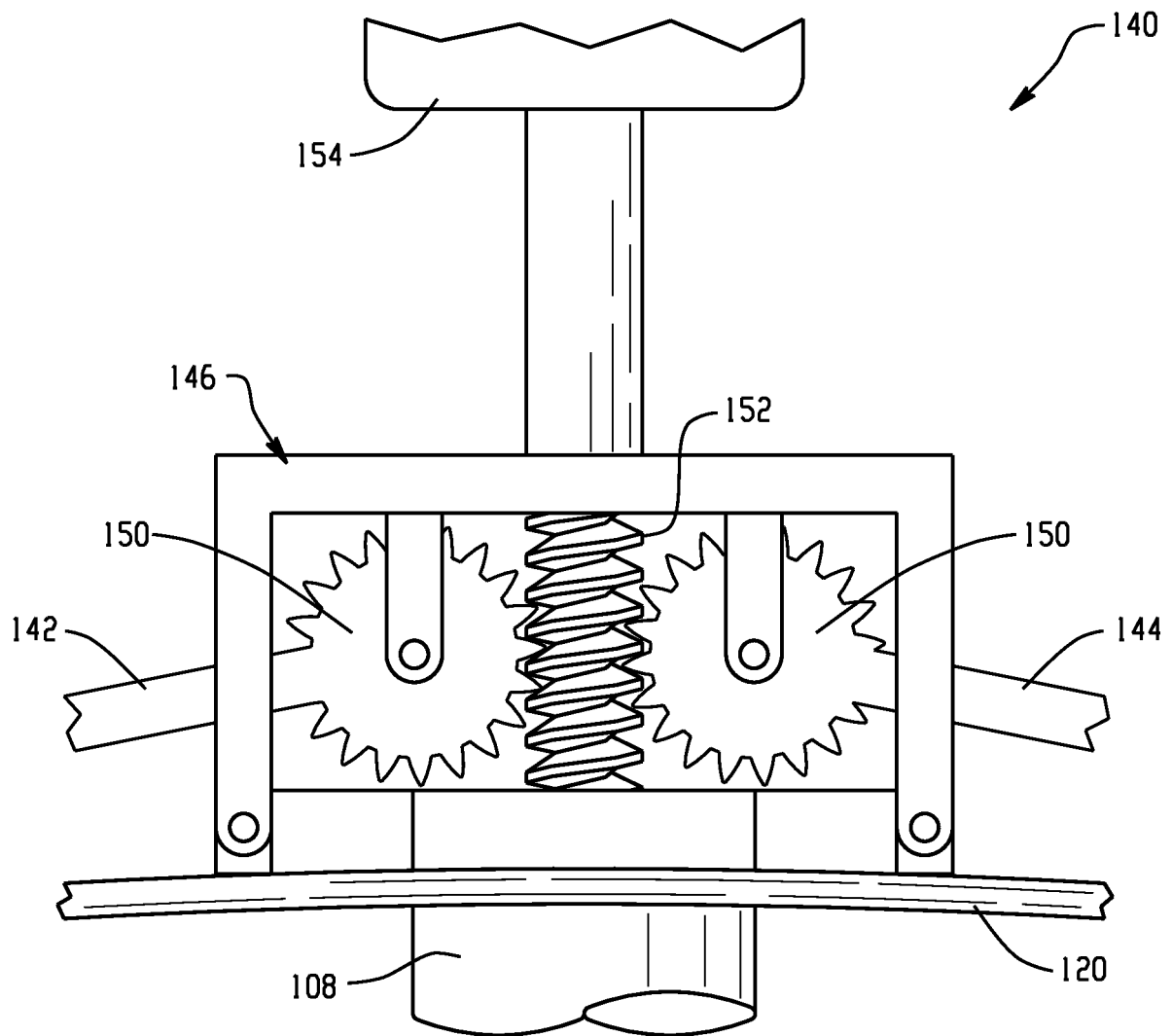


Fig. 6

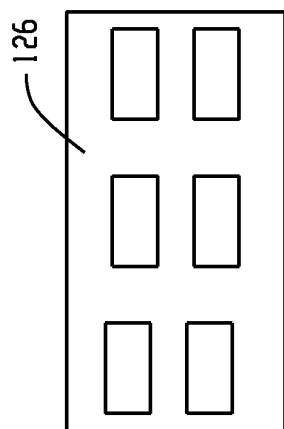


Fig. 8

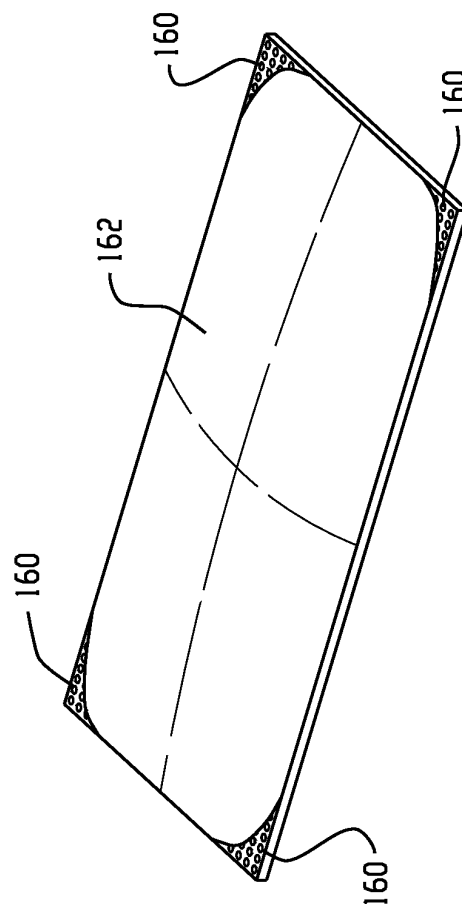


Fig. 9

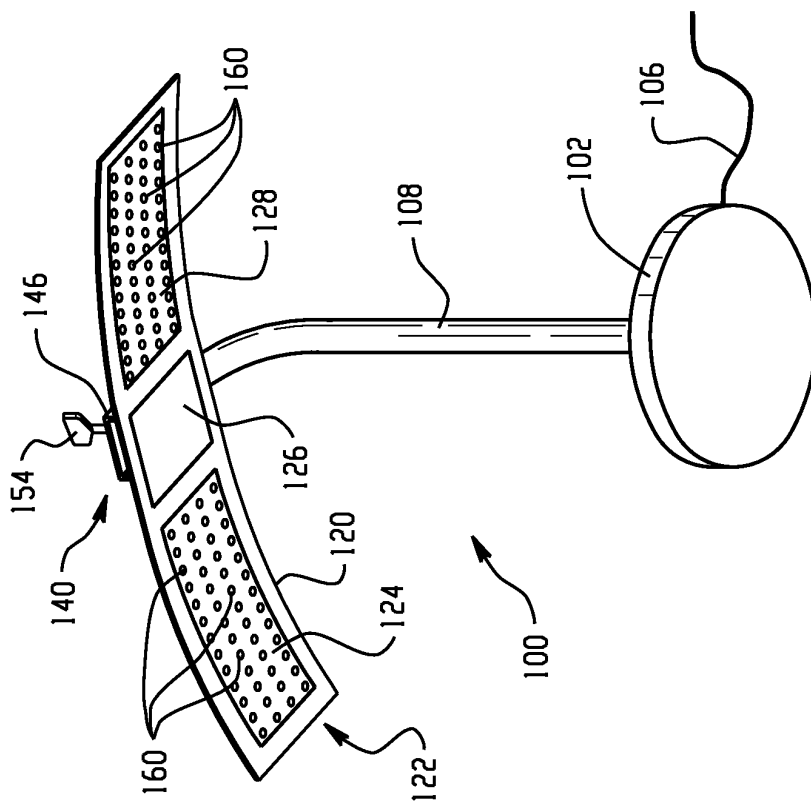


Fig. 7

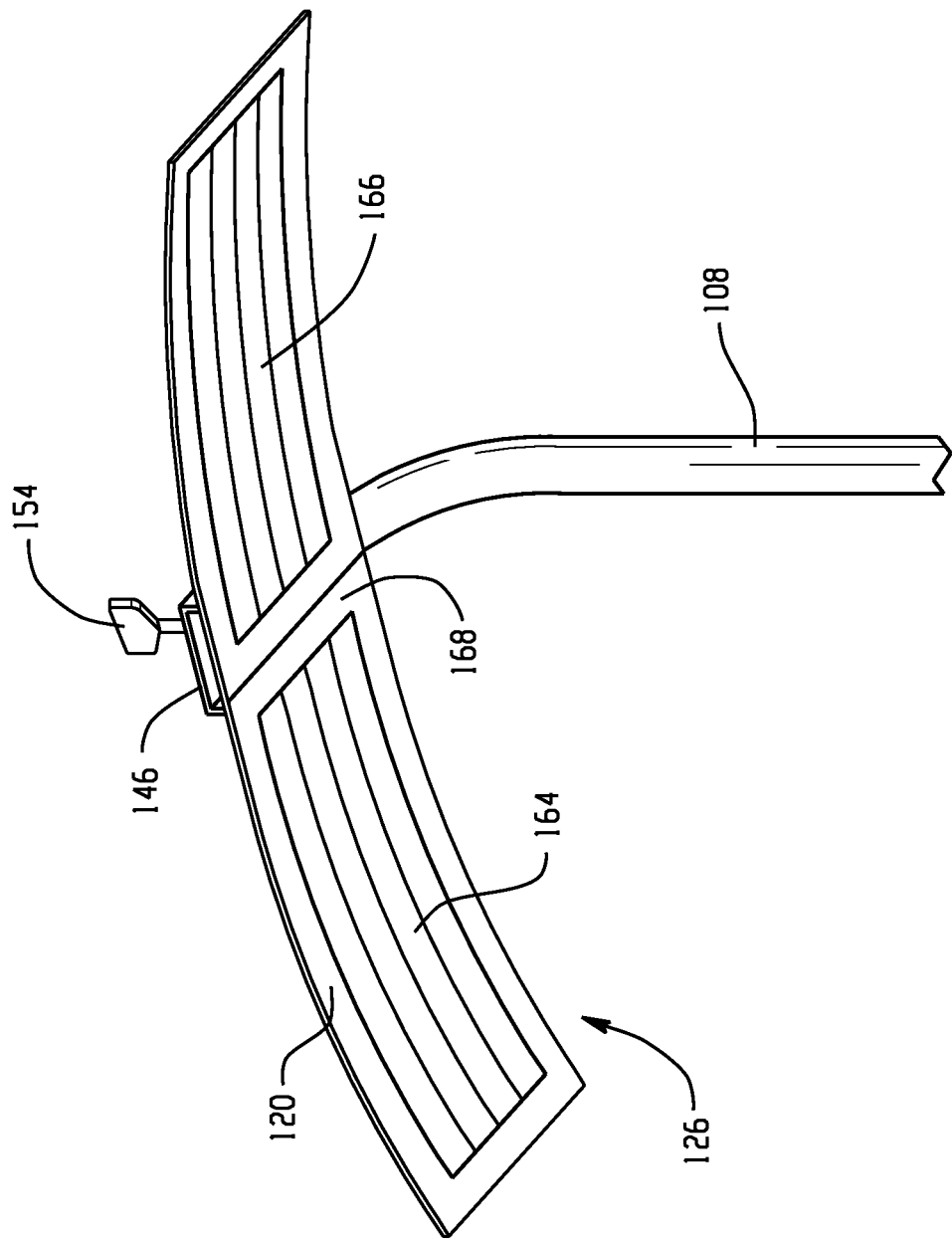
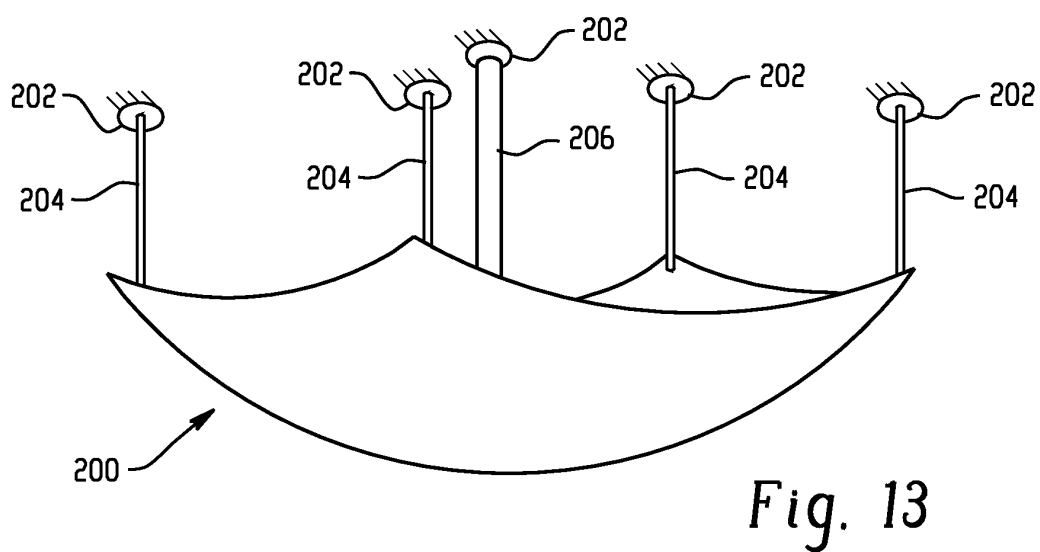
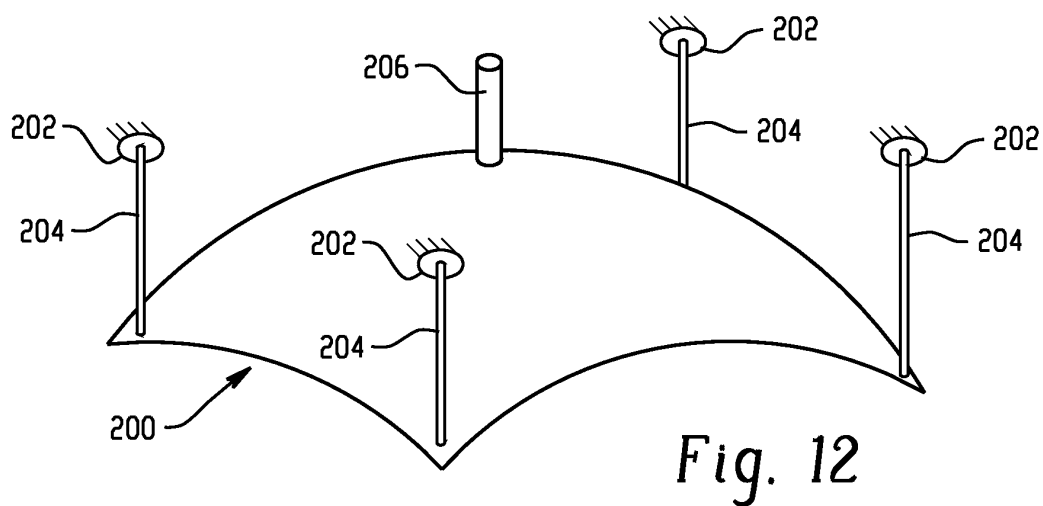
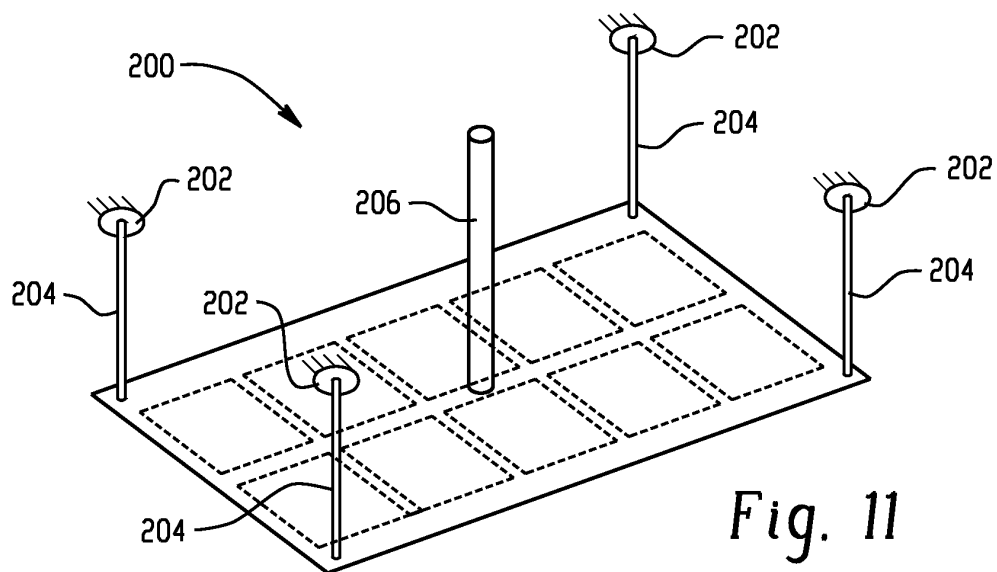
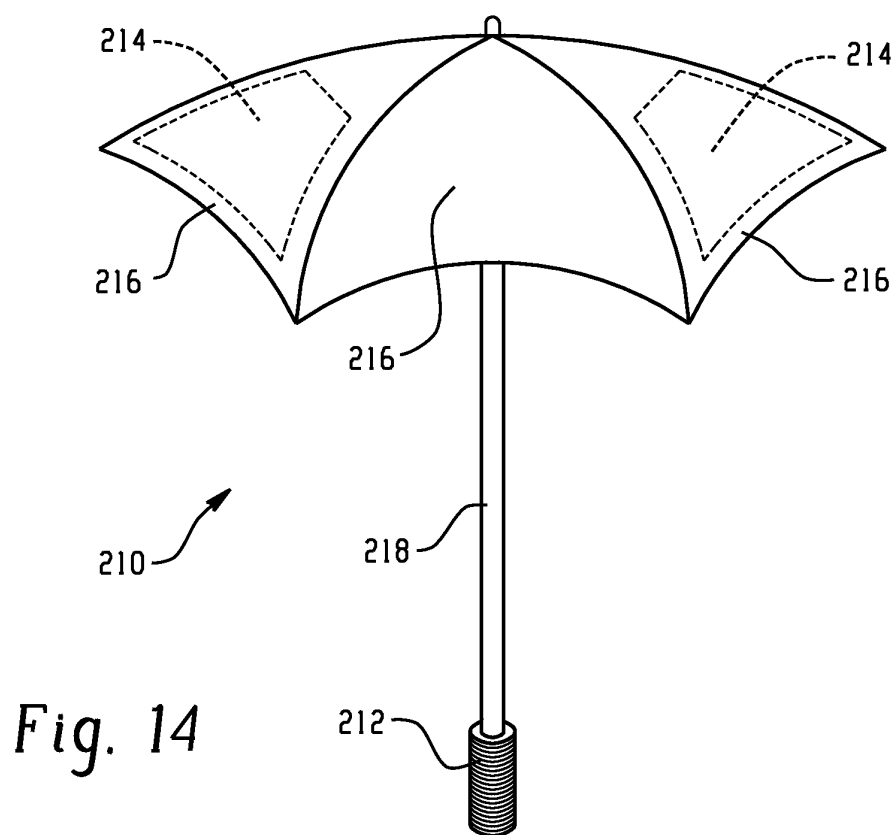
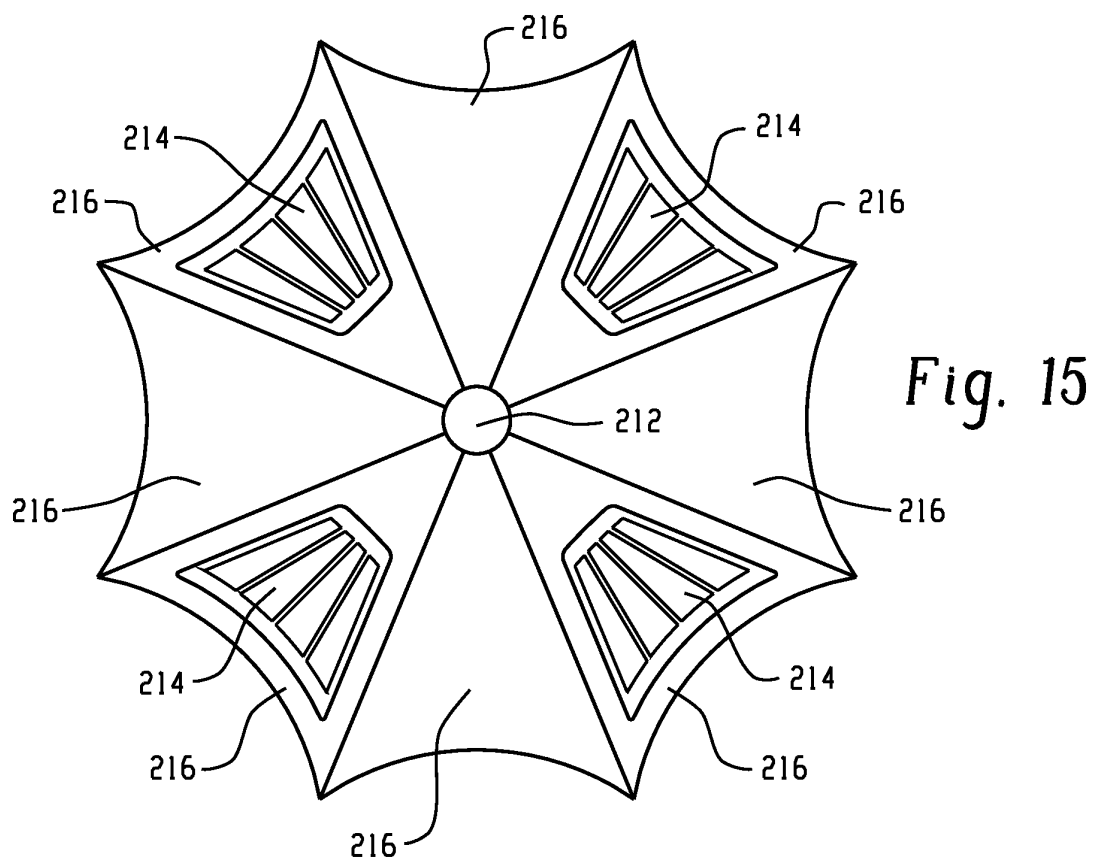


Fig. 10





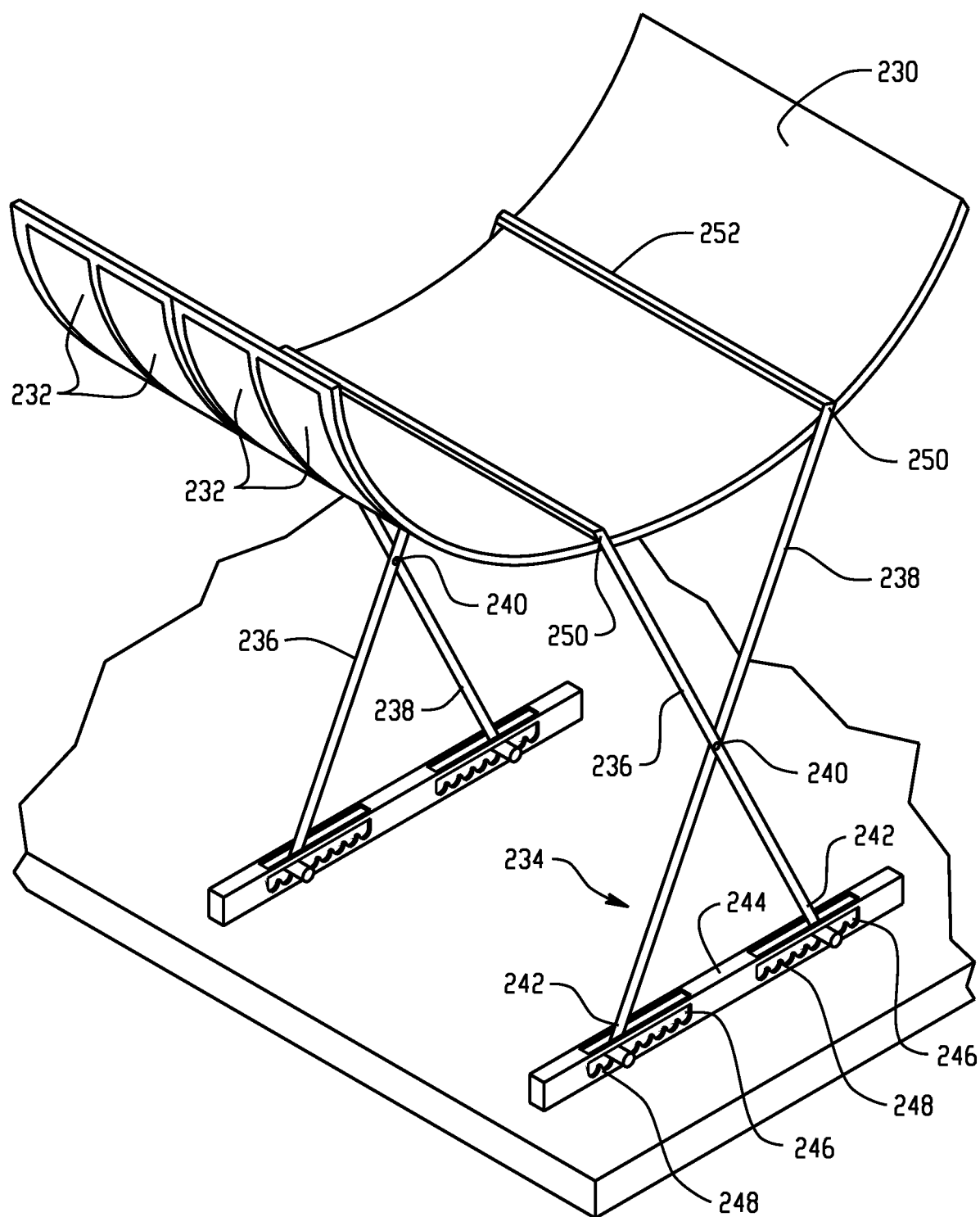


Fig. 16

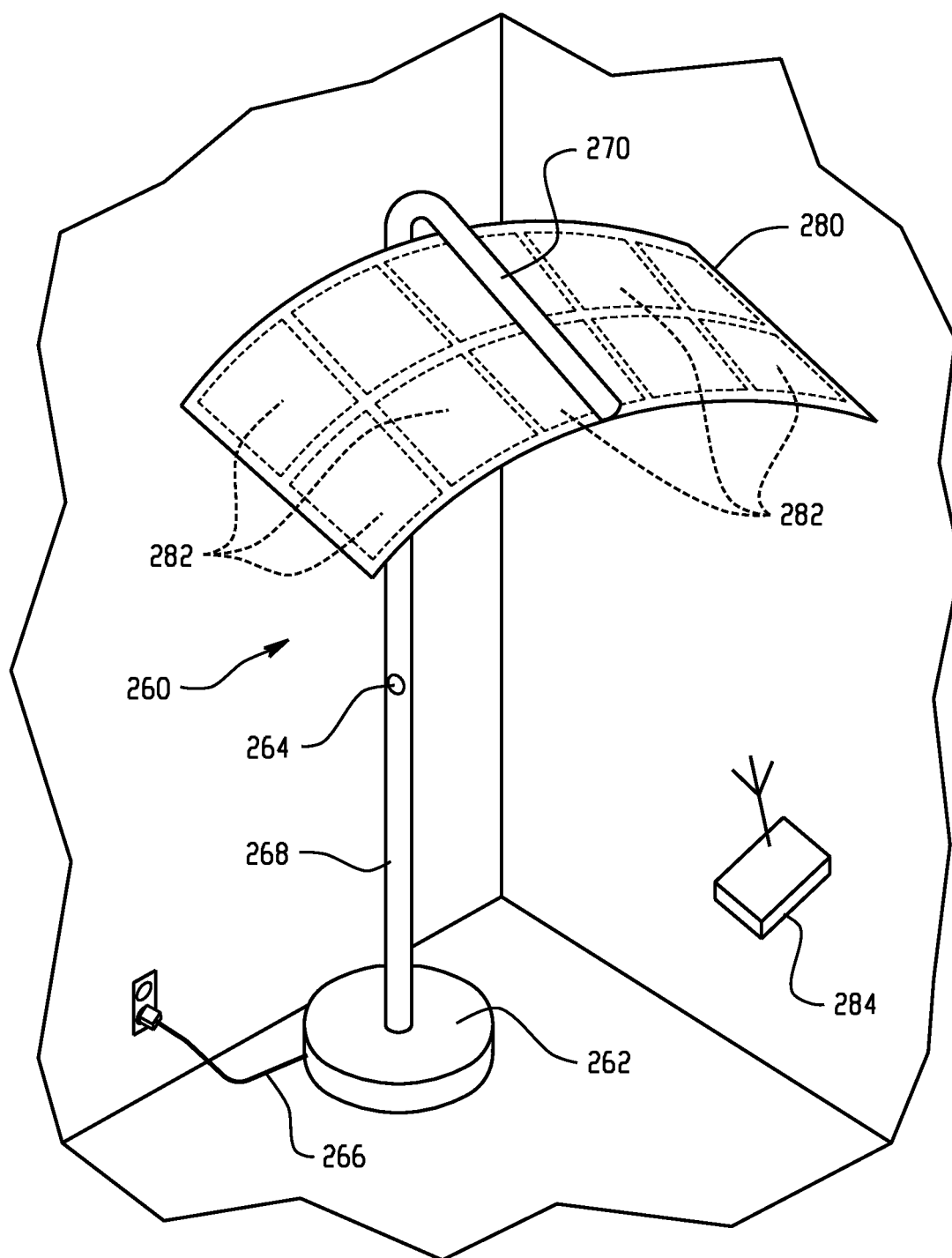


Fig. 17

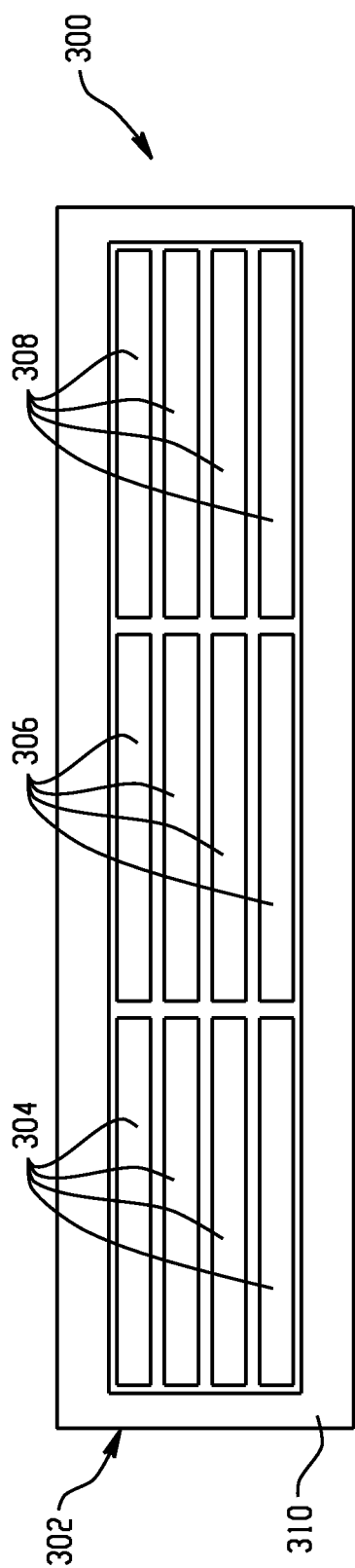


Fig. 18

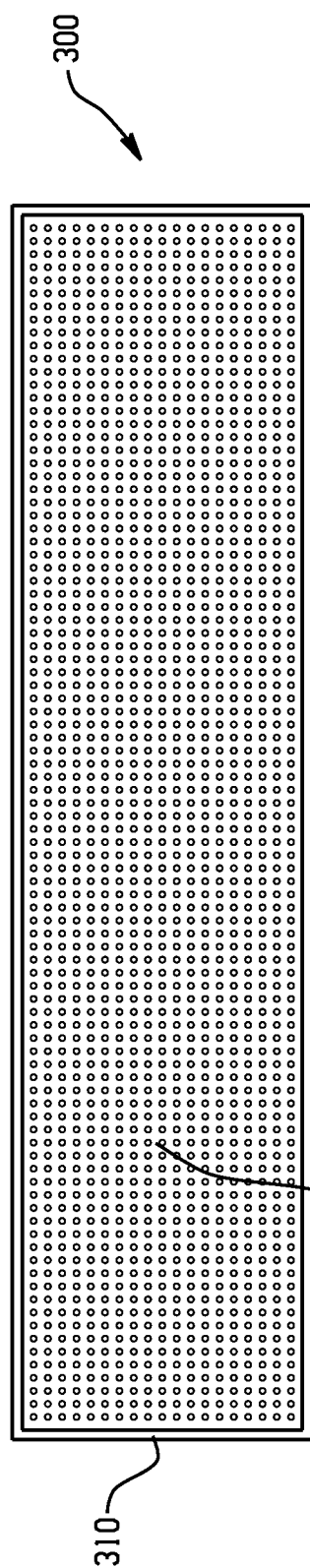


Fig. 19

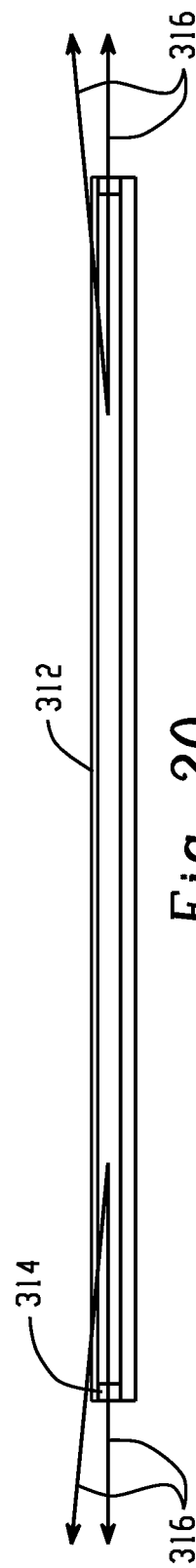


Fig. 20

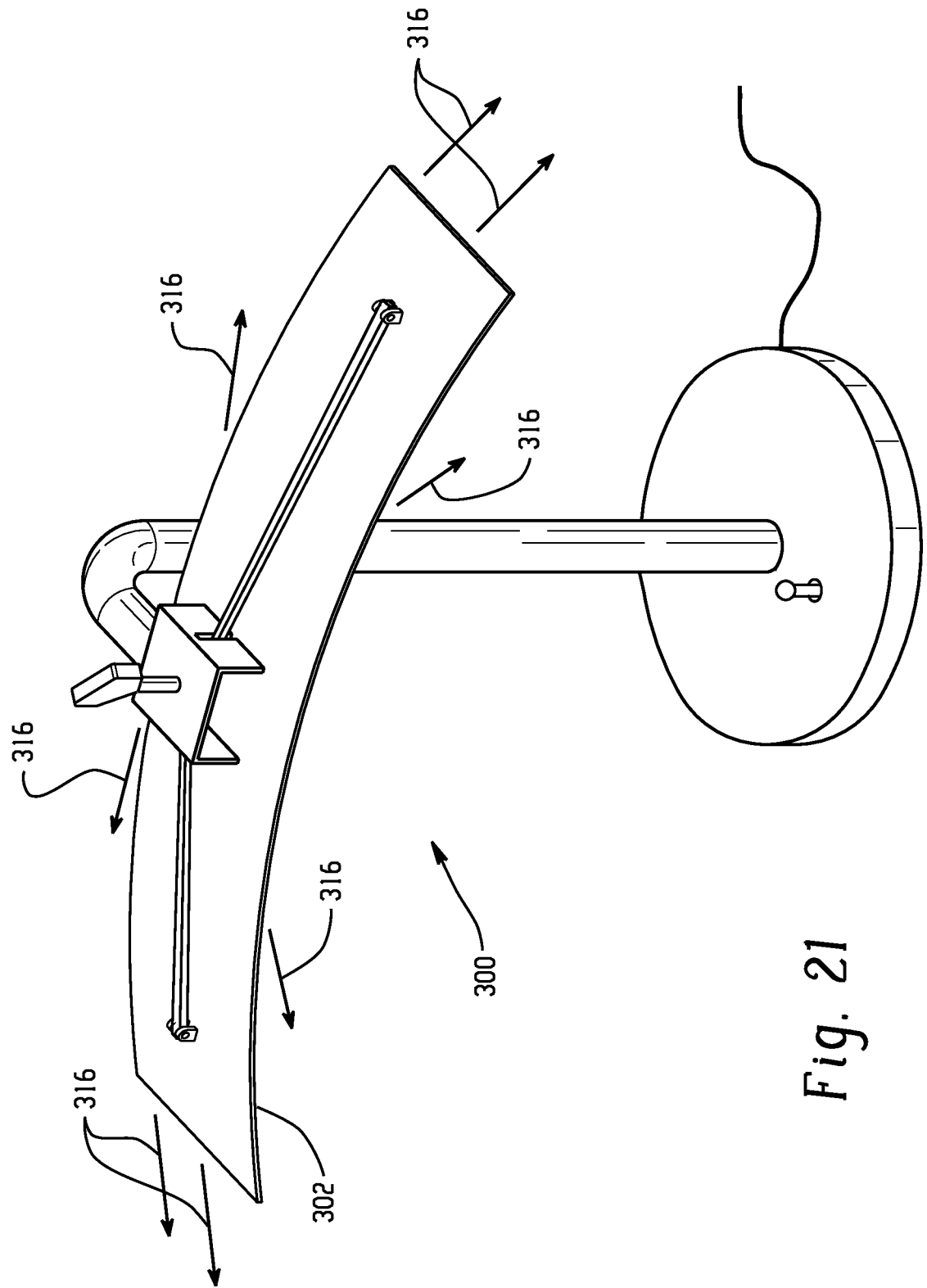


Fig. 21

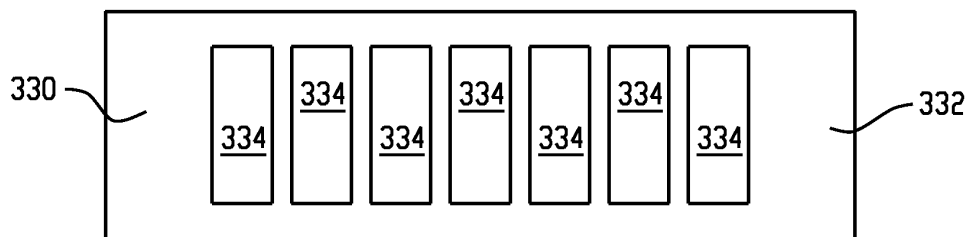


Fig. 22

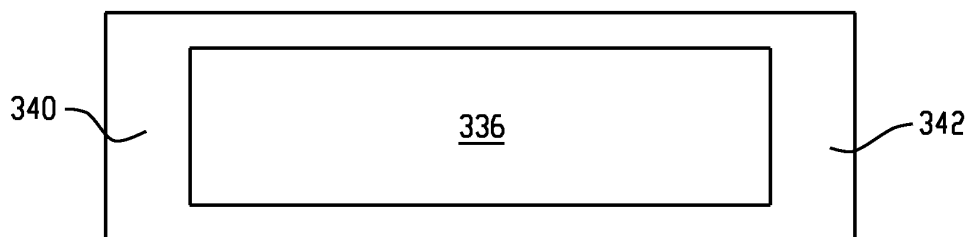


Fig. 23

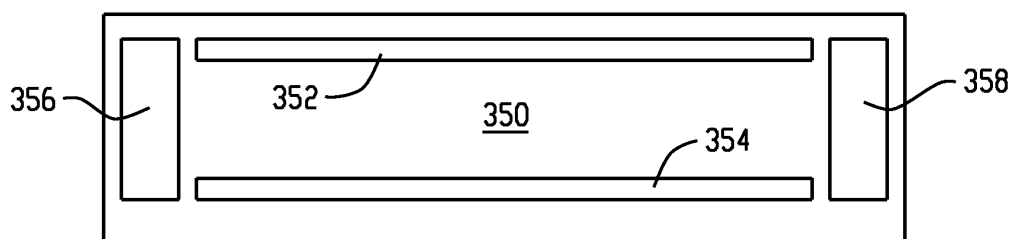


Fig. 24

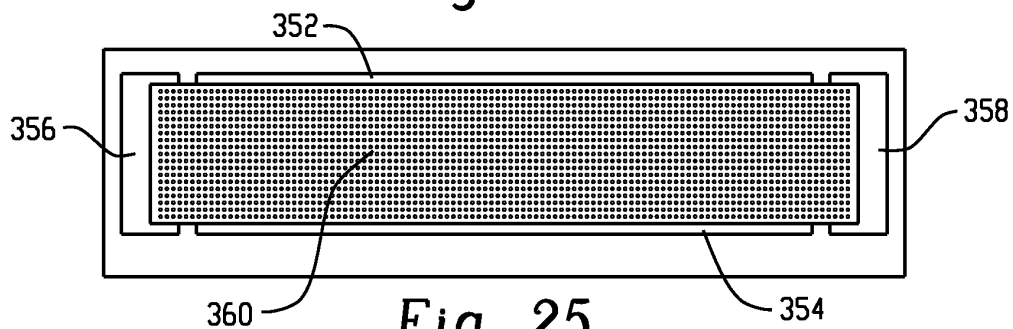


Fig. 25



Fig. 26

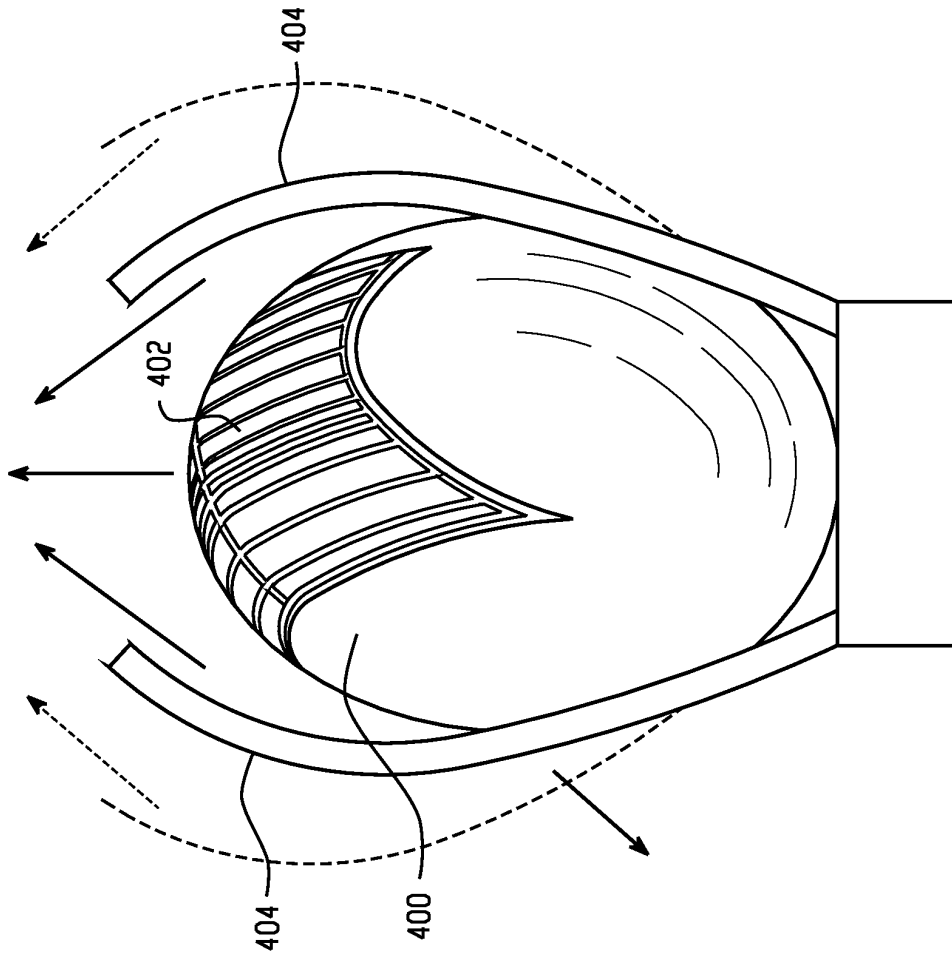


Fig. 28

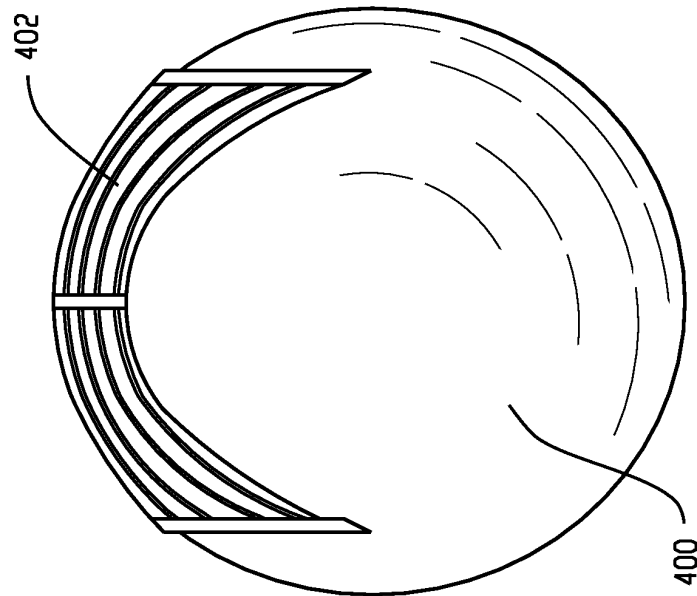


Fig. 27

REFERENCES CITED IN THE DESCRIPTION

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